AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for providing access to data in a programmable integrated circuit (IC), comprising:

maintaining a hierarchy of directories and files in a virtual file system that is registered with an operating system, wherein the directories and files are associated with resources of the programmable IC;

wherein the directories and files have names indicative of resources of the programmable IC;

in response to program calls to file system routines that reference the names of files that indicate resources of the programmable IC,

invoking the virtual file system; and

accessing state information in resources of the programmable IC by the virtual file system.

wherein the accessing includes:

reading configuration data from a set of resources of the programmable IC in response to a call to a first file system routine that references the name of a file that indicates the set of resources;

writing configuration data to a set of resources of the programmable IC in response to a call to a second file system routine that references the name of a file that indicates the set of resources; and

disabling a clock signal input to the programmable IC in response to a call to a third virtual file system function.

2. (Original) The method of claim 1, wherein the resources include configurable logic resources.

3. (Original) The method of claim 2, wherein the resources include storage resources.

Claims 4-5. (Cancelled)

6. (Previously Presented) The method of claim 1, wherein the hierarchy of directories and files includes a directory with a plurality of region files, each region file associated with and having a name that indicates resources within an area of the programmable IC associated with the region file.

7. (Previously Presented) The method of claim 1, wherein the hierarchy of directories and files includes an application directory that includes a hierarchy of application sub-directories and application files, wherein each application subdirectory is associated with and having a names that indicates a subsystem implemented on the programmable IC, and each application file under an application sub-directory represents resources associated with the subsystem of the application sub-directory.

8. (Currently Amended) The method of claim 1 [[5]], further comprising:

associating access permission indicators with selected ones of the directories and files;

granting read access to configuration data from a set of configurable resources associated with a file in response to a first state of an access permission indicator associated with the file; and

denying read access to configuration data from a set of resources associated with a file in response to a second state of the access permission indicator associated with the file.

9. (Original) The method of claim 8, further comprising:

granting write access to configuration data from a set of configurable resources associated with a file in response to a third state of an access permission indicator associated with the file; and

denying write access to configuration data from a set of resources associated with a file in response to a fourth state of the access permission indicator associated with the file.

10. (Previously Presented) The method of claim 1, wherein the hierarchy of directories and files includes a directory with an executable file, the executable file configured to access state information of the programmable IC, and the method further comprising:

    associating access permission indicators with selected ones of the directories and files;

    granting execution access to an executable file in response to a first state of an access permission indicator associated with the executable file; and

    denying execution access to an executable file in response to a second state of the access permission indicator associated with the executable file.

11. (Previously Presented) The method of claim 1, wherein the hierarchy of directories and files includes a directory with an executable file, the executable file configured with instructions for interpretation by the virtual file system and instructing access to state data of the programmable IC, and the method further comprising, in response to a request for execution of the executable file, instructing the virtual file system to interpret the instructions of the executable file.

12. (Original) The method of claim 1, wherein the hierarchy of directories and files includes a directory with at least one executable file, the executable file configured with one or more control codes for transferring control to the virtual file system, and the method further comprising, in response to a request for execution of the executable file, transferring control to the virtual file system.

13. (Currently Amended) The method of claim 1 [[5]], wherein the programmable IC is coupled to a node via a network, further comprising:

    exporting information describing the hierarchy of directories and files to the node; and

    providing network access to the first and second functions of the virtual file system.

Claim 14. (Cancelled)

15. (Currently Amended) The method of claim 1 [[14]], further comprising enabling a clock signal input to the programmable IC in response to a call to a fourth virtual file system function.

16. (Previously Presented) The method of claim 1, wherein the hierarchy of directories and files includes a directory with a plurality of region directories and each region directory includes a configuration file and a state file, each configuration file associated with configurable logic resources within an area of the programmable IC associated with the region directory, and each state file associated with storage resources within the area of the programmable IC associated with the region directory.

17. (Previously Presented) The method of claim 1, further comprising:
    connecting configurable logic resources in a first area of the programmable IC to configurable logic resources in a second area of the programmable IC by reconfiguration of routing resources in the programmable IC in response to a call by the application program to a file system routine that specifies a first file associated with the first area of the programmable IC, a second file associated with the second area of the programmable IC, and a pipe.

18. (Previously Presented) The method of claim 1, further comprising:
    implementing a processor on a programmable IC; and
    hosting the operating system on the processor.

19. (Previously Presented) The method of claim 1, further comprising:
    interfacing the virtual file system with a configuration controller implemented on the programmable IC; and
    accessing programmable IC resources via the configuration controller in response to access requests from the virtual file system.

20. (Original) The method of claim 19, wherein the interfacing step comprises interfacing the virtual file system with a configuration controller via a network.

21. (Original) The method of claim 1, further comprising

     writing a configuration file to a sym file handle provided by the virtual file system, wherein the configuration file specifies the hierarchy of directories and files; and

     in response to writing of the configuration file, establishing the hierarchy of directories and files by the virtual file system.

22. (Currently Amended) A method for providing access to data in a programmable integrated circuit (IC), comprising:

     maintaining a hierarchy of directories and files in a virtual file system that is registered with an operating system, wherein the directories and files are associated with resources of the programmable IC;

     wherein the directories and files have names indicative of resources of the programmable IC;

     in response to program calls to file system routines that reference the names of the files that indicate resources of the programmable IC,

          invoking the virtual file system; and

          accessing by the virtual file system state information in a bitstream file containing state information of resources of the programmable IC,

          wherein the accessing includes:

               reading configuration data into the bitstream file from a set of resources of the programmable IC in response to a call to a first file system routine that references the name of a file that indicates the set of resources;

               writing configuration data from the bitstream file to a set of resources of the programmable IC in response to a call to a second file system routine that references the name of a file that indicates the set of resources; and

disabling a clock signal input to the programmable IC in response
to a call to a third virtual file system function.

23. (Currently Amended) An apparatus for providing access to data in a
programmable integrated circuit (IC), comprising:

means for maintaining a hierarchy of directories and files in a virtual file system
that is registered with an operating system, wherein the directories and files are
associated with resources of the programmable IC;

wherein the directories and files have names indicative of resources of the
programmable IC; and

means, responsive to program calls to file system routines that reference the
names of the files that indicate resources of the programmable IC, for invoking the
virtual file system and accessing state information in resources of the programmable
IC by the virtual file system,

wherein the means for accessing includes:

means for reading configuration data from a set of resources of the
programmable IC in response to a call to a first file system routine that
references the name of a file that indicates the set of resources;

means for writing configuration data to a set of resources of the
programmable IC in response to a call to a second file system routine that
references the name of a file that indicates the set of resources; and

means for disabling a clock signal input to the programmable IC in
response to a call to a third virtual file system function.

24. (Currently Amended) An apparatus for providing access to data in a
programmable integrated circuit (IC), comprising:

means for maintaining a hierarchy of directories and files in a virtual file system
that is registered with an operating system, wherein the directories and files are
associated with resources of the programmable IC;

wherein the directories and files have names indicative of resources of the
programmable IC; and

means, responsive to program calls to file system routines that reference the names of the files that indicate resources of the programmable IC, for invoking the virtual file system and accessing by the virtual file system state information in a bitstream file containing state information of resources of the programmable IC,

wherein the means for accessing includes:

means for reading configuration data into the bitstream file from a set of resources of the programmable IC in response to a call to a first file system routine that references the name of a file that indicates the set of resources;

means for writing configuration data from the bitstream file to a set of resources of the programmable IC in response to a call to a second file system routine that references the name of a file that indicates the set of resources; and

means for disabling a clock signal input to the programmable IC in response to a call to a third virtual file system function.

25. (Currently Amended) An article of manufacture, comprising:

a processor-readable medium configured with instructions for causing a processor to perform the steps including,

maintaining a hierarchy of directories and files in a virtual file system that is registered with an operating system, wherein the directories and files are associated with resources of a programmable integrated circuit (IC);

wherein the directories and files are named to represent resources of the programmable IC;

in response to program calls to file system routines that reference the names of the files that indicate resources of the programmable IC,

invoking the virtual file system; and

accessing state information in resources of the programmable IC by the virtual file system,

wherein the accessing includes:

reading configuration data from a set of resources of the programmable IC in response to a call to a first file system routine that references the name of a file that indicates the set of resources;

writing configuration data to a set of resources of the programmable IC in response to a call to a second file system routine that references the name of a file that indicates the set of resources; and

disabling a clock signal input to the programmable IC in response to a call to a third virtual file system function.

26. (Currently Amended) A system for providing access to configurable logic resources on an integrated circuit (IC), comprising:

a processor hosting an operating system, the operating system accessing a hierarchy of directories and files in a virtual file system, wherein the directories and files are associated with the configurable logic resources;

wherein the directories and files have names indicative of resources of the IC; and

code stored in a computer readable memory, the code having program calls to file system routines that reference the names of the files that indicate the configurable logic resources such that the virtual file system is invoked and state information in the configurable logic resources is accessed by the virtual file system.

wherein the accessing includes:

reading configuration data from a set of resources of the programmable IC in response to a call to a first file system routine that references the name of a file that indicates the set of resources;

writing configuration data to a set of resources of the programmable IC in response to a call to a second file system routine that references the name of a file that indicates the set of resources; and

disabling a clock signal input to the programmable IC in response to a call to a third virtual file system function.

27. (Original) The system of claim 26 wherein the IC comprises an FPGA.

28.   (Original)   The system of claim 26 wherein the processor is an embedded processor on the IC.

29.   (Original)   The system of claim 26 wherein the processor is a processor external to the IC.

30.   (Previously Presented)   The method of claim 1, wherein the hierarchy of directories and files includes a directory with a plurality of region files, each region file associated with unused resources of the programmable IC.